SONY

3-752-976-23 (1)

Trinitron® Color TV

KV-20EXR20
KV-27EXR20
KV-27EXR25

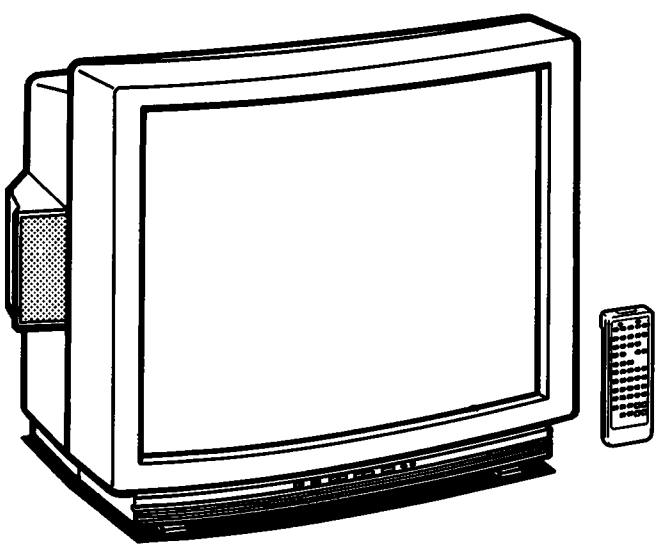
Operating Instructions

Before operating your TV, please read this manual thoroughly and retain it for future reference.

Owner's Record

The model and serial numbers are located at the rear of the TV. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____



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Contents

Preface
This section tells you about special features, safety information, and preparatory information for using this manual.

Chapter 1: Set up
This section shows you the steps necessary for installing and presetting your TV.

Chapter 2: Basic Operation
This section gives you basic information about operating and adjusting your TV.

Chapter 3: Advanced Operation
This section shows you how to use Picture-in-Picture and other useful features, the GUIDE on-screen menu, and the Universal Remote Commander.

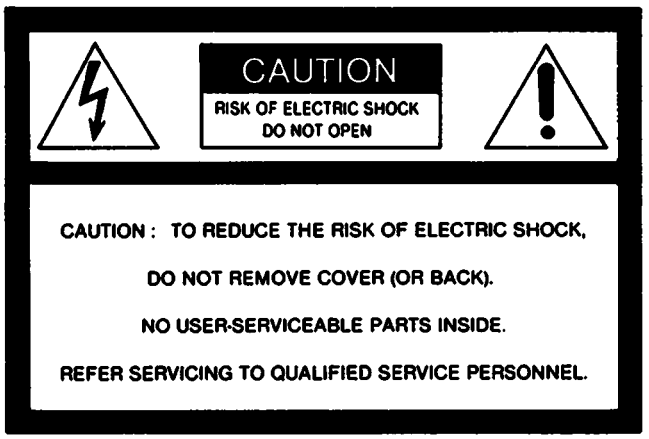
Chapter 4: Other Connections
This section shows you how to connect optional video and audio equipment.

Appendix
This section gives you the troubleshooting, specifications and information.

• For a detailed table of contents, see page 3.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION:
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Note to CATV system installer
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Use of this television receiver for other than private viewing of programs broadcast on UHF or VHF transmitted by cable companies for the use of the general public may require authorization from the broadcaster/cable company and/or program owner.

Identifying Your TV

Instructions in this manual are based on the model with maximum functions (KV-27EXR25). Please disregard information that does not apply to your TV.

Check the model number of your TV set.
This manual covers three models and there are slight differences among them. Check the table below to see what is equipped with your TV before you begin operating it.

Tabe for each model **YES: equipped** **No: not equipped**

	KV-20EXR20	KV-27EXR20	KV-27EXR25
Picture-in-picture function	NO	NO	YES
Remote commander	RM-Y103	RM-Y103	RM-Y104

Model KV-27EXR20 is available only in the U.S.A.

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Features

This color TV features a Microblack™ TRINITRON® picture tube for a high resolution, high contrast picture.

- **Picture-in-picture feature** lets you watch two screens at once. A TV channel or video source can be displayed as a window picture in a corner of the main screen. (KV-27EXR25 only)
- **Surround system** simulates the sound quality of a concert hall or movie theater while listening to a stereo program or sound from an external source.
- **Multi-band VHF/UHF/CATV tuner** receives up to 125 cable channels for a total of 181 possible off-air and cable channels.
- **Built-in Multichannel TV Sound (MTS) decoder** lets you receive stereo programs and Second Audio Program (SAP) broadcasts.
- **S VIDEO IN jack**, when connected to the S video output jack on the VCR, allows superior quality pictures from the VCR to be displayed on the screen.
- **Variable audio output jacks** enable reproduction of TV or video sound through an audio system.
- **VIDEO 2 OUT jacks** enable video and sound recording from VCR equipment connected to the VIDEO 2 IN jacks.

Supplied Remote Commander provides you with these and other convenient features.

- Remote commander operates the TV, a Sony VCR and multi disc player from a distance.
- **Guide function** provides on-screen instructions for setting the clock, timer and channel block.
- **Automatic programming** presets all receivable channels instantly.
- **JUMP** button lets you switch quickly between two channels.
- **Sleep timer** automatically turns off the TV after approximately one hour.
- **Internal clock** displays the current time.

And other features for a high quality picture...

- **New Dynamic picture™ system** adjusts picture contrast automatically, producing more detail in the bright and dark areas of every scene.
- **Trinitone™ control** assures accurate, life-like skin tones and pure whites.
- **Colorpure Filter™** produces fine picture detail without color spill or color noise.

Precautions

Safety

- Operate the TV only on 120 V AC.
- One blade of the plug is wider than the other for safety purposes and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.
- Should any liquid or solid object fall into the cabinet, unplug the TV and have it checked by qualified personnel before operating it any further.
- Unplug the TV from the wall outlet if you are not going to use it for several days or more. To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- Never remove the speakers from the TV.

Installing

- To prevent internal heat build-up, do not block the ventilation openings.
- Do not install the TV in a hot or humid place, or in a place subject to excessive dust or mechanical vibration.

Cleaning

Clean the TV with a soft dry cloth. Never use strong solvents such as thinner or benzine as they might damage the finish of the cabinet.

Repacking

Retain the original carton and packing materials for safe transport of your TV in the future.

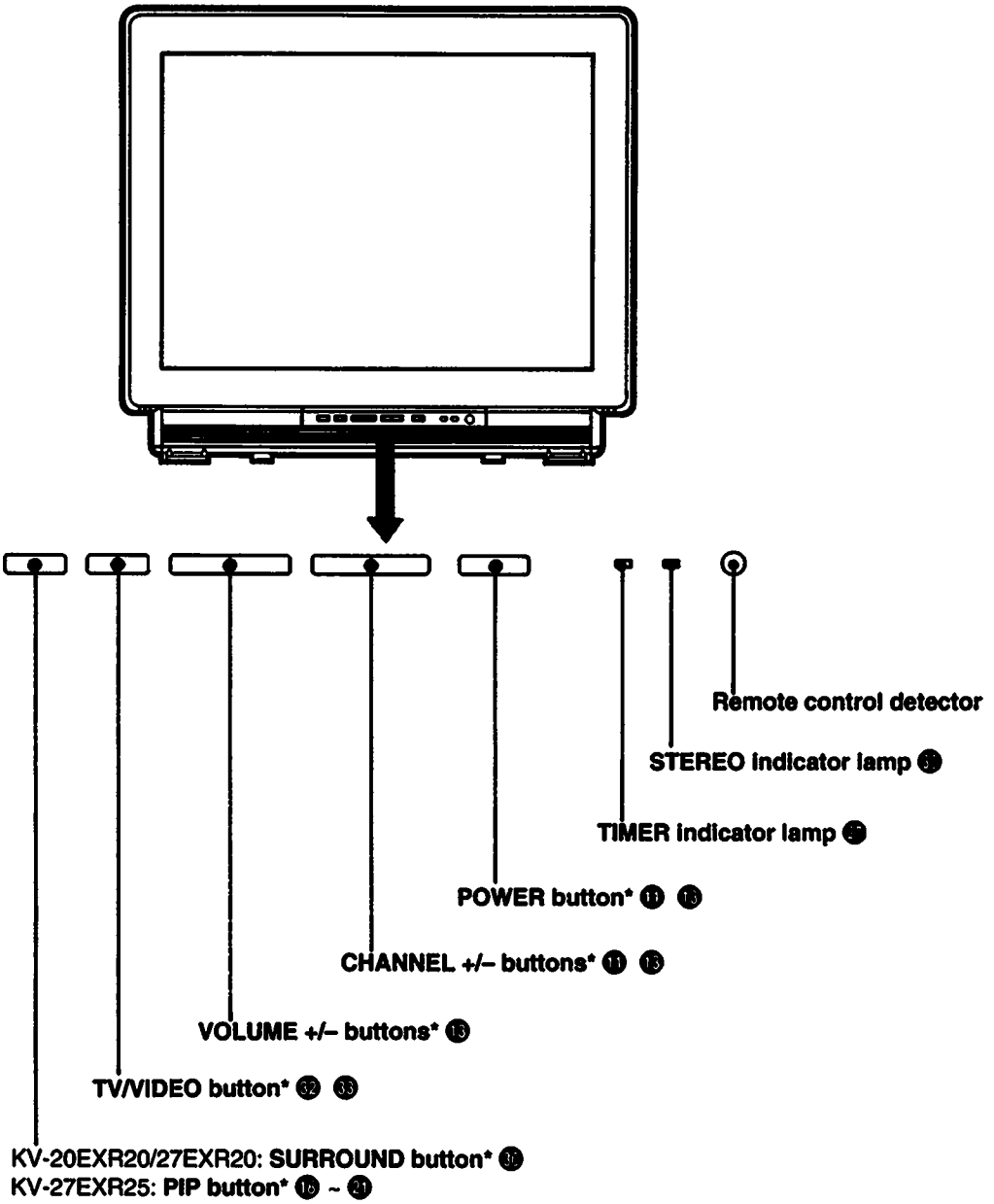
If you have any questions or problems concerning your TV, please contact your nearest Sony dealer.

For details concerning safety precautions, see the supplied leaflet "IMPORTANT SAFEGUARDS".

Location of Controls

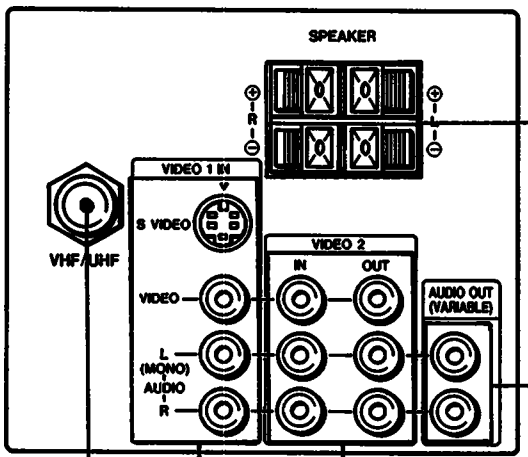
Front panel

For details, refer to the pages indicated by the numbered black circles ●.


Remote control detector
STEREO indicator lamp 39
TIMER indicator lamp 40
POWER button* 11 13
CHANNEL +/– buttons* 11 13
VOLUME +/– buttons* 13
TV/VIDEO button* 32 33
KV-20EXR20/27EXR20: SURROUND button* 31
KV-27EXR25: PIP button* 15 ~ 21

Buttons with the same function are also located on the commander (p. 8).

Rear Panel



SPEAKER terminals ●

AUDIO OUT (VARIABLE) jacks ●

VIDEO 2 IN and OUT jacks ●

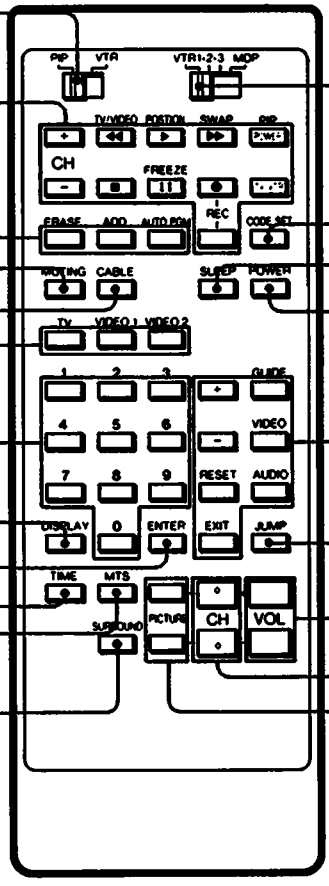
VIDEO 1 IN jacks (S VIDEO, VIDEO/AUDIO) ●

VHF/UHF antenna terminal ● ●

Universal Remote Commander

For details, refer to the pages indicated by the numbered black circles ●.

PIP/VTR (Picture-in-Picture or video) selector ●~●
(KV-27EXR25 only)
VCR/Sony multi disc player operation buttons ** ●
(KV-27EXR25 only)
***Function as buttons for the Picture-in-Picture operations when PIP is selected (See page 18).*
Channel presetting buttons ● ●
MUTING button ●
CABLE button ● ●
Input select buttons (TV/VIDEO 1/2) ● ● ●
Channel number buttons ● ●
DISPLAY button ●
ENTER button ● ● ●~●
TIME button ●
MTS (multichannel TV sound) button ●
SURROUND button* ● (PIP button*●)



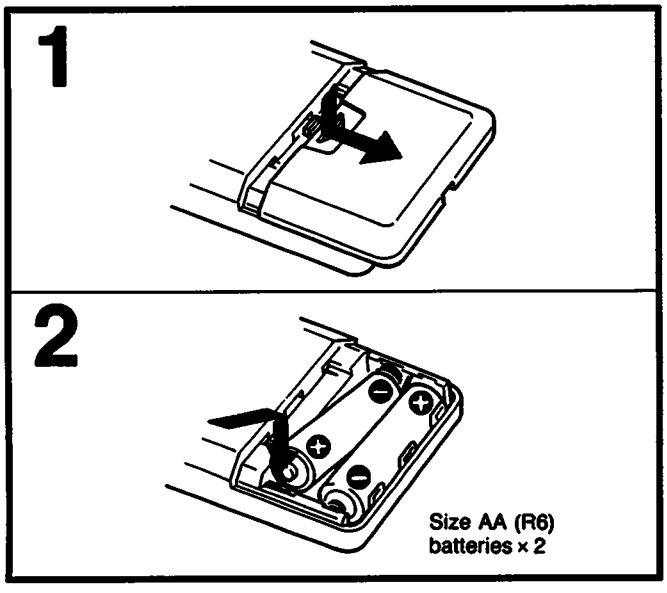
VTR 1/2/3/MDP (multi disc player) selector ● ● ●
CODE SET button (Pre-Programmed function) ●
SLEEP button ●
POWER button* ● ●
A/V WINDOW (audio and video adjusting) buttons ●~●
JUMP button ●
VOL (volume) +/– buttons* ●
CH (channel) +/– buttons* ● ●
PICTURE +/– buttons ●

**Buttons with the same function are also located on the TV (p. 6).*

Note: Model KV-27EXR25 also has a PIP button on the TV, instead of a SURROUND button.

RM-Y104 (Y103)

Installing Batteries



Battery life
With normal operation, batteries will last up to half a year. If the commander does not operate properly, the batteries might be exhausted. Replace both with new ones.

To avoid damage from possible battery leakage
Remove the batteries when the remote commander will not be used for a long time.

Connecting TV Antenna/Cable

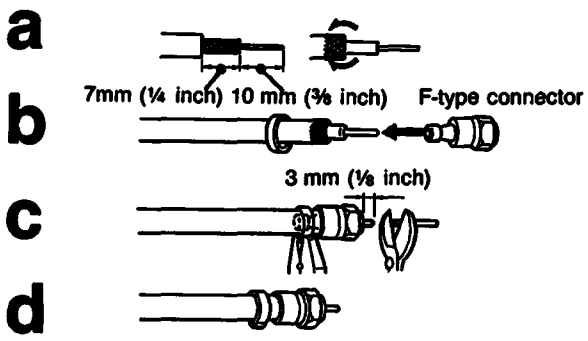
You can use either an indoor or outdoor antenna with your TV.
We recommend using an outdoor antenna for better picture quality.
You can receive cable TV by connecting a cable supplied by your local cable company.

To Connect VHF, UHF or VHF/UHF Combination Antenna*, or CATV Cable

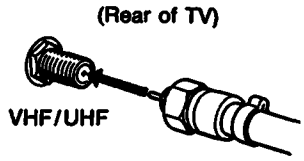
75-ohm coaxial cable (round)

1 Check your antenna cable type and prepare the end of the cable using the F-type connector.

Attach an F-type connector (not supplied).



2 Plug the connector into the VHF/UHF terminal at the rear of the TV.

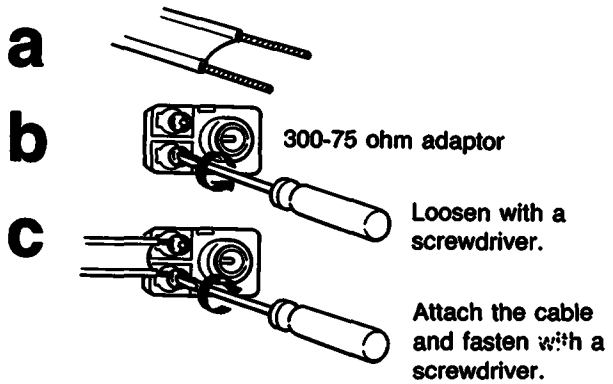


*Most combination antennas are equipped with a signal splitter. Remove the splitter and attach the appropriate connector.

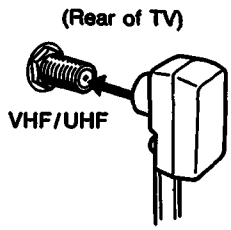
300-ohm twin-lead cable (flat)

1 Check your antenna cable type and prepare the end of the cable using the 300-75 ohm adaptor.

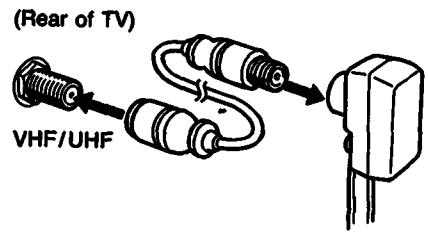
Attach a 300-75 ohm adaptor (not supplied).



2 Plug the connector into the VHF/UHF terminal at the rear of the TV.



For better picture quality, connect optional antenna cable so that the 300-ohm twin-lead cable can be separated a distance from the TV.



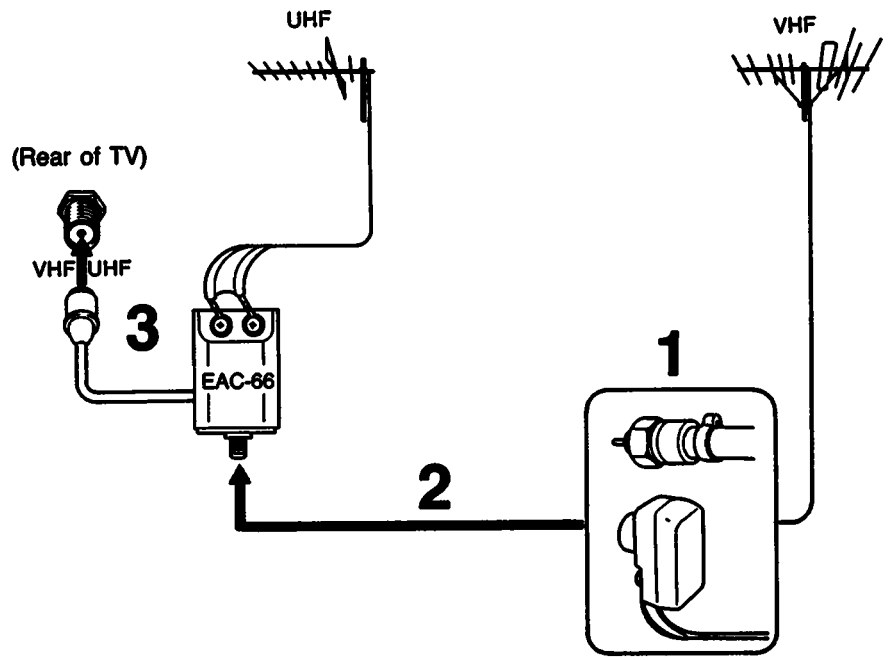
To connect both VHF and UHF antennas

Use the EAC-66 U/V mixer (not supplied).

1 Prepare the VHF antenna end using the appropriate connector (p.9).

2 Connect the cables to the mixer.

3 Attach the mixer to the VHF/UHF terminal.

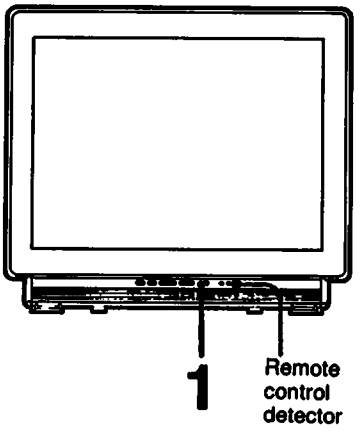


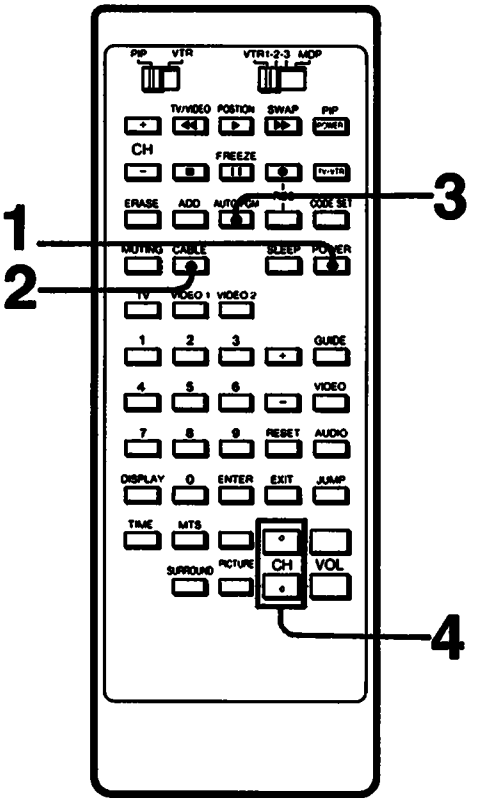
When the U/V mixer is used
Snow and noise may appear in the pictures of the cable TV channels over 37 (W + 1).

*The special converter/decoder will be supplied by the cable company.

Presetting TV Channels

To Preset TV Channels Automatically





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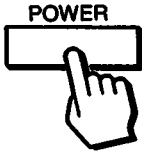
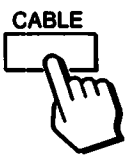
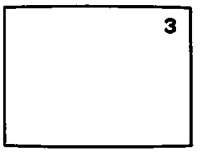
1 Press POWER on the TV or the remote commander to turn the TV on.

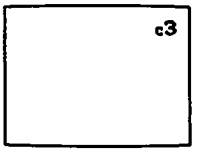


2 Press CABLE so that the appropriate mode appears.





To preset VHF or UHF channels



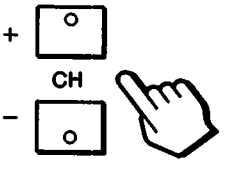
To preset cable TV channels

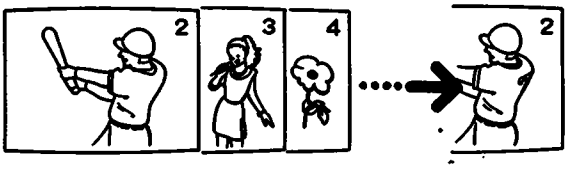
If "VIDEO 1" or "VIDEO 2" is displayed on the screen, press the TV/VIDEO button on the TV or the TV button on the remote commander so that a channel number appears.

3 Press AUTO PGM.

"AUTO PROGRAM" is displayed on the screen and receivable channels (other than the channels already preset) will be preset in numerical sequence. The channels previously preset remain in the TV's memory.
When no more channels can be found, the programming stops and the lowest numbered channel is displayed.

4 Press CH +/– to check or view preset channels.

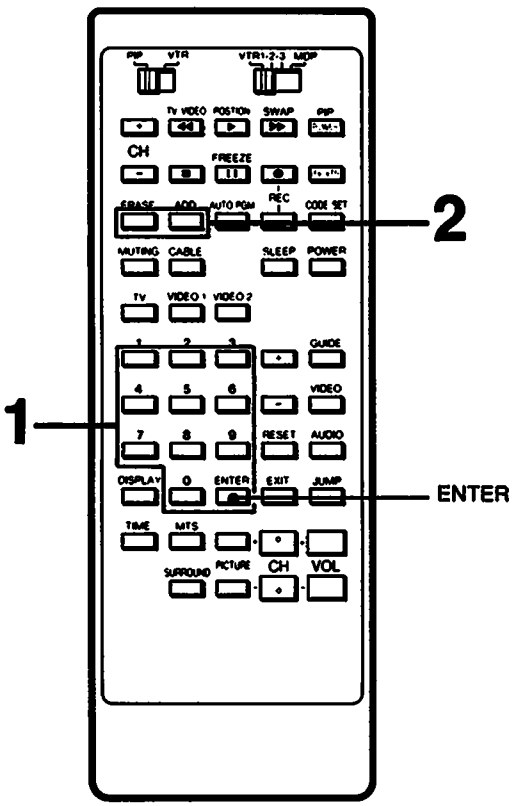




Channels that can be received on this TV:
VHF: 2 – 13
UHF: 14 – 69
Cable: 1 – 125

To add channels that could not be preset automatically because their signal strength was too weak, or to erase unnecessary channels, follow the steps in "To Preset Only Desired Channels or to Erase Unnecessary Channels" on the next page.

To Preset Only Desired Channels or to Erase Unnecessary Channels



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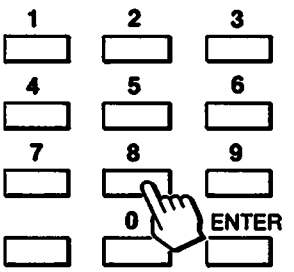
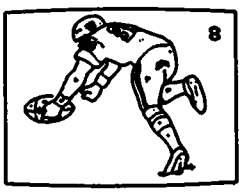
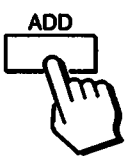
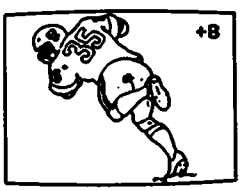
1 Press the channel number button(s) and then press ENTER to select the channel you want to add or erase.





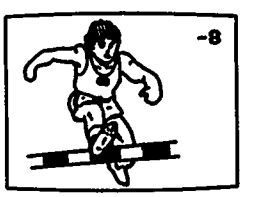
2 To add channels
Press ADD.





A "+" appears before the number for a moment.
This channel has now been added to the channel scan memory.

To erase channels
Press ERASE.



A "–" appears before the number for a moment.
This channel has now been erased from the channel scan memory.
The next time you press the CH +/– button, this channel will be skipped.
Repeat steps 1 and 2 to add or erase other channels.

CAUTION
When a VHF or UHF channel is erased
The cable TV channel with the same number is also erased, and vice versa.

Cable TV channel chart*
Cable TV systems use letters or numbers to designate channels. To tune in a channel, refer to the chart below.

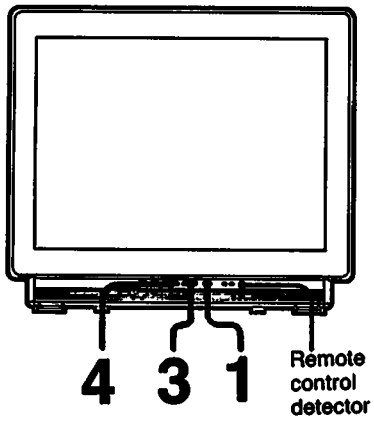
Number on this TV	1	5	6	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Corresponding CATV channel	A-8	A-7	A-6	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q

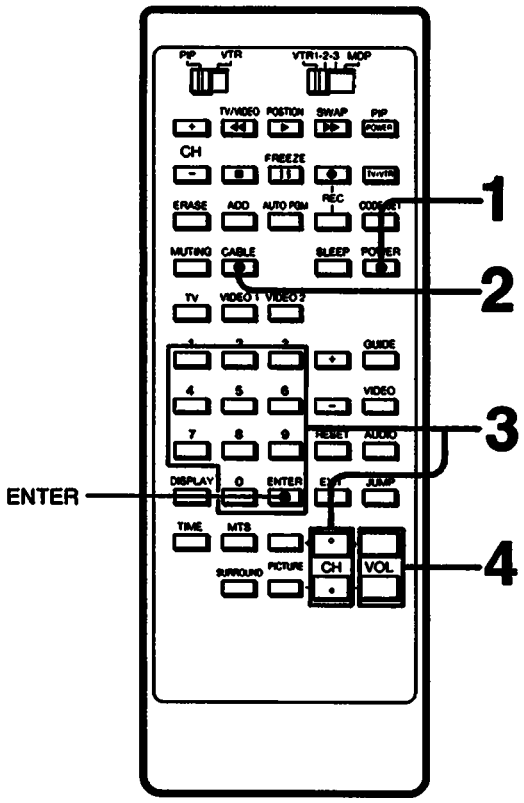
31	32	33	34	35	36	37	38	39	.....	93	94	95	96	97	98	99	100	101	102	.....	123	124	125
R	S	T	U	V	W	W+1	W+2	W+3	.....	W+57	W+58	A-5	A-4	A-3	A-2	A-1	W+59	W+60	W+61	.....	W+82	W+83	W+84

Check with your local cable TV company for more complete information on the available channels.

*This designation of cable TV channels conforms to the EIA/NCTA recommendation.

Watching TV Programs

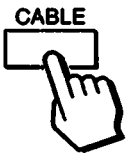


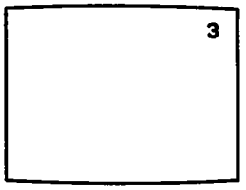


RM-Y104

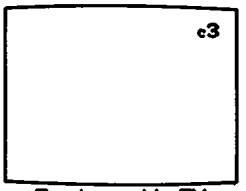
1 Press POWER on the TV or the remote commander to turn the TV on.

2 Press CABLE so that the appropriate mode appears.





To view VHF or UHF channels

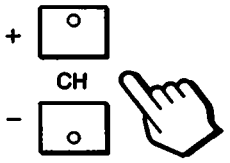


To view cable TV channels

If "VIDEO 1" or "VIDEO 2" is displayed on the screen, press the TV/VIDEO button on the TV or the TV button on the remote commander so that a channel number appears.

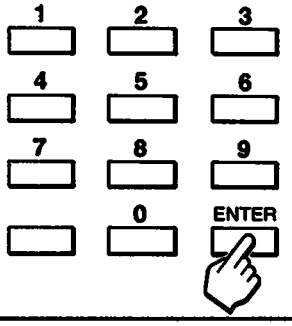
3 Select a channel in one of the following two ways:

To scan the preset channels* in numerical sequence, press CH +/−.

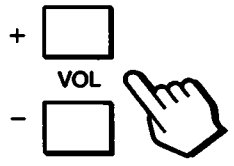


*For more on presetting channels, see p. 11 — 12.

To select a channel directly, press the channel number button(s) and then ENTER. For example, to select channel 10, press 1, 0 and ENTER.



4 Press VOL + or − to adjust the volume.

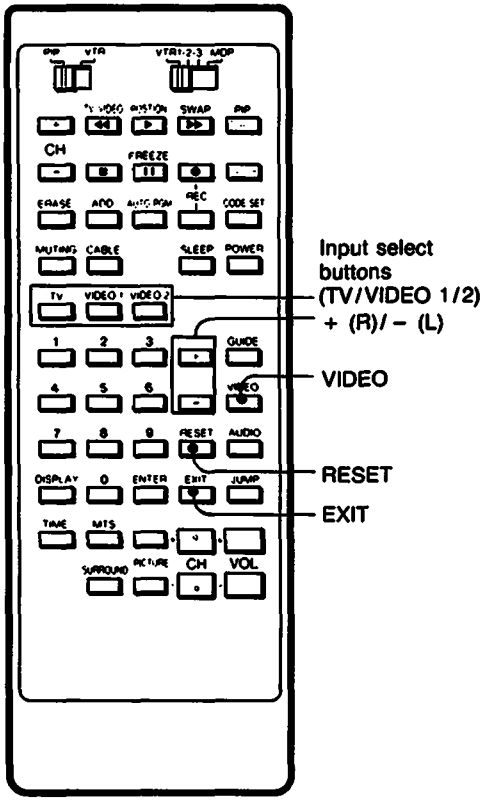


To turn off the TV
Press POWER on the TV or the remote commander again.

Adjusting Picture and Sound Quality

You can set different picture and sound quality levels for each input mode by changing the input mode (TV/VIDEO 1/2) before setting. These settings will be retained even when you turn the TV off.

Adjusting the Picture



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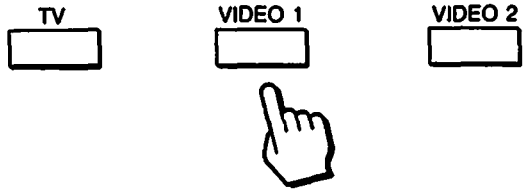
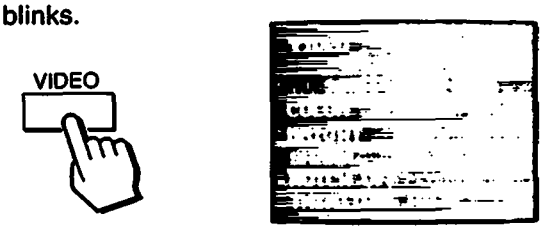
1 Select the input mode you want to adjust with the TV/VIDEO 1/2 buttons.

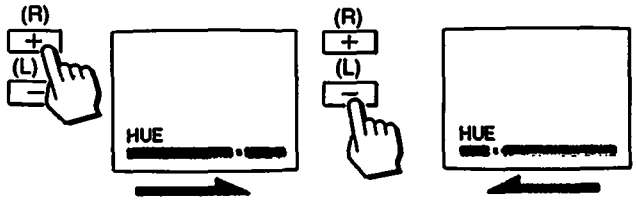


2 Press VIDEO.

3 Press VIDEO repeatedly until the quality you want to adjust blinks.



4 Press + (R) or – (L) to make the adjustment.



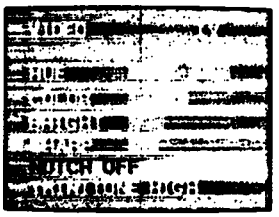
Picture quality	Press – (L) button	Press + (R) button
HUE	Skin tones become purplish	Skin tones become greenish
COLOR	For less color intensity	For more color intensity
BRIGHT	For less brightness	For more brightness
SHARP	For less sharpness	For more sharpness

The display will disappear automatically after a few seconds.

The SHARP Control has no effect with a window picture.
(PIP function — KV-27EXR25 only)

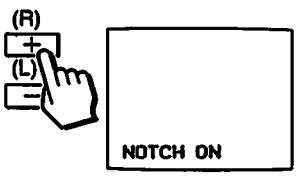
NOTCH filter setting

Press VIDEO.



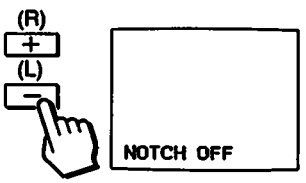
Normally, set to NOTCH OFF.
If dots or stripes appear while you are watching an image from a computer or video source, set to NOTCH ON.

To set NOTCH filter ON.



Press +.

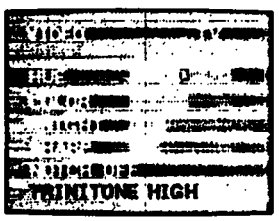
To set NOTCH filter OFF.



Press −.

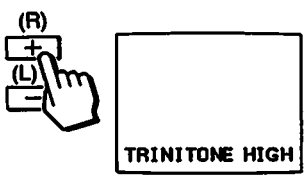
TRINITONE adjustment

Press VIDEO.



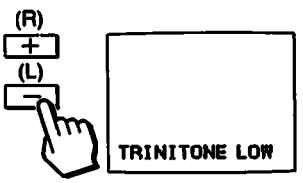
Color picture tubes are usually manufactured with a fixed color temperature (tint) that determines the "warmth" (red tint) or "coolness" (blue tint) of the picture. With Sony's Trinitone feature, you can adjust the picture color to your preference.

For bright white



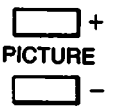
TRINITONE HIGH
The factory preset whiteness level will be restored.

For soft white



TRINITONE LOW
A touch of red will be added to the white areas.

Picture Contrast adjustment



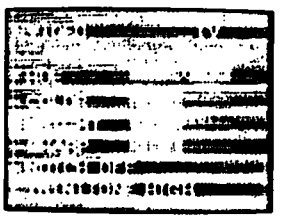
Press to increase picture contrast with vivid color.

Press to decrease picture contrast with soft color.

Note
The picture contrast level cannot be stored under each input mode. (p. 25)

To restore the factory (mid-level) settings

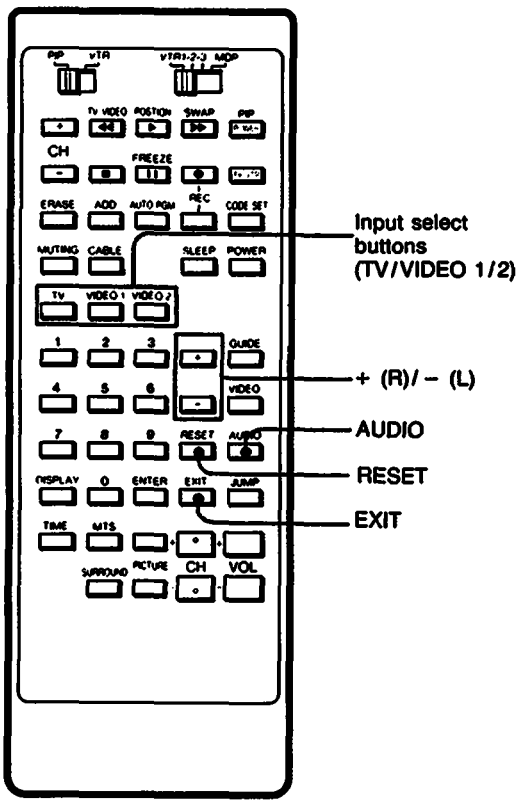
Press RESET.



The display will disappear after a few seconds.

To restore the normal picture
Press EXIT.

Adjusting the Sound



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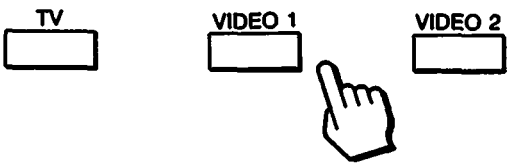
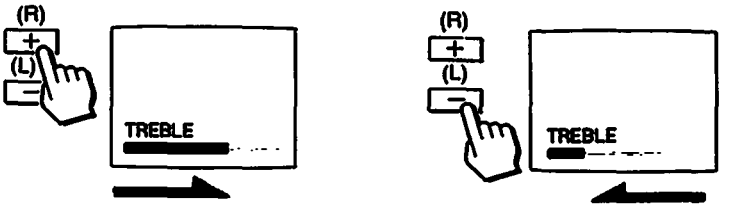
1 Select the input mode you want to adjust with the TV/VIDEO 1/2 buttons.



2 Press AUDIO.

3 Press AUDIO repeatedly until the quality you want to adjust blinks.

4 Press + (R) or – (L) to make the adjustment.

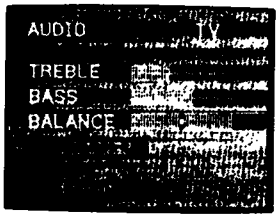


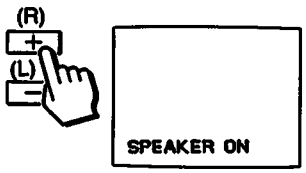
Sound quality	Press – (L) button	Press + (R) button
TREBLE	To decrease treble response	To increase treble response
BASS	To decrease bass response	To increase bass response
BALANCE	To emphasize the left speaker's volume	To emphasize the right speaker's volume

The display will disappear automatically after a few seconds.

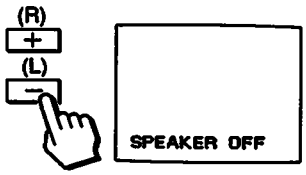
SPEAKER ON

Press AUDIO.





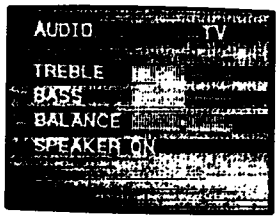
To use the speakers connected to the SPEAKER terminals.



To use an audio system connected to the AUDIO OUT jacks.

To restore the factory (mid-level) settings

Press RESET.

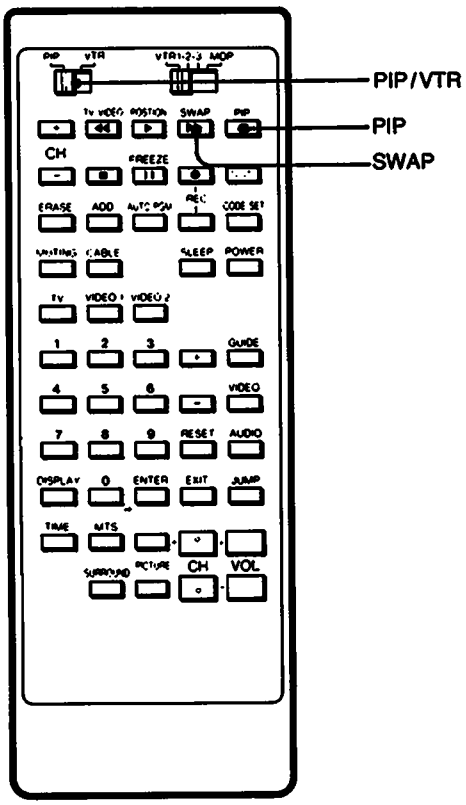


The display will disappear after a few seconds.

To restore the normal picture
Press EXIT.

Using Picture-in-Picture (KV-27EXR25 only)

Picture-in-Picture controls



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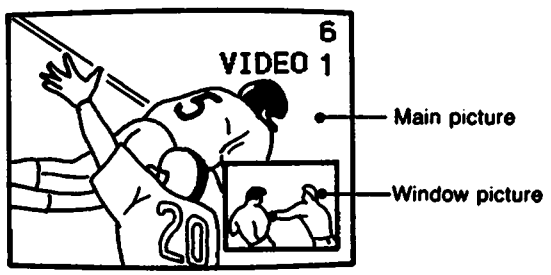
This function is included only with model KV-27EXR25.

With the Picture-in-Picture function, you can watch both the main picture and a second (window) picture at the same time.
In order to enjoy this function, **first connect your video equipment (VCR, video disc player, etc.) to the TV.** Then you can watch two TV programs, or a TV program and a video source at the same time. For instructions on connecting video equipment, see p. 31.

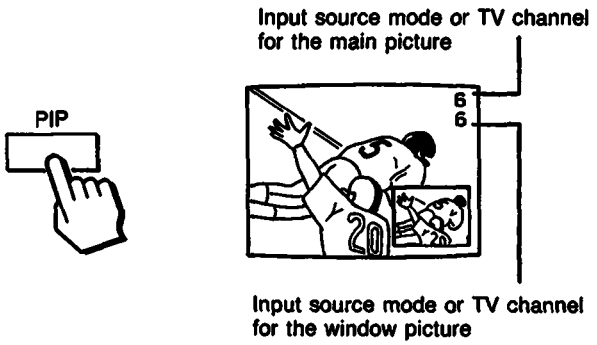


Note
If the main picture is blocked, Picture-in-Picture does not function. Press EXIT to cancel CHANNEL BLOCK. (See page 29 — Setting CHANNEL BLOCK.)

To display a window picture — PIP

1 Set the PIP/VTR selector to PIP.

2 Press PIP.



A window picture will appear in the same mode as the last time you used PIP.

Picture-in-Picture also functions when the main picture is in the VIDEO mode.

To change the input mode of a window picture

Press TV/VIDEO on the remote commander. Each time you press this button, TV, VIDEO 1 or VIDEO 2 mode will be selected in sequence.

To make the window picture disappear

Press PIP again.

To scan channels in the window picture

Press CH +/− on the remote commander.

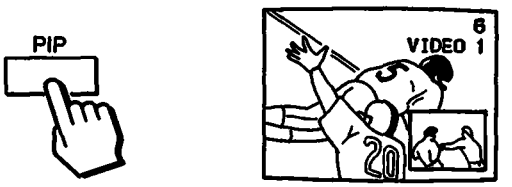
Notes on the sub picture

- You cannot hear the sound of the window picture channel.
- If a window picture is blocked, the "BLOCKED" display will appear on the main screen.

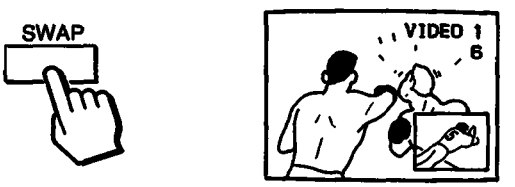
To swap the main and window pictures — SWAP

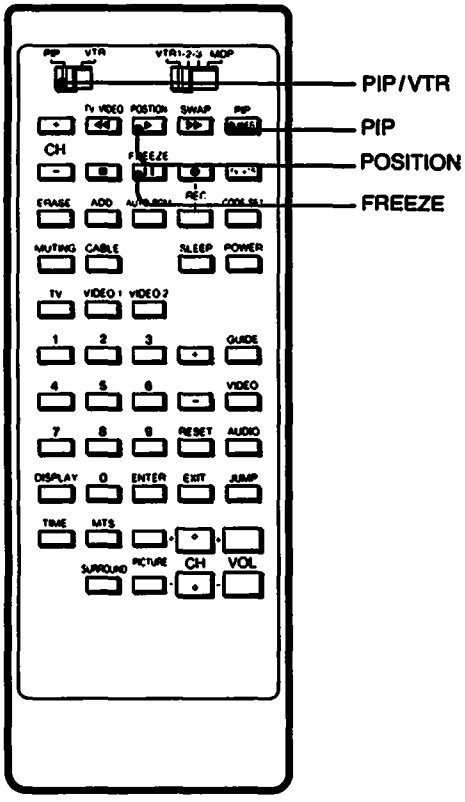
1 Set the PIP/VTR selector to PIP.

2 Press PIP to display a window picture.



3 Press SWAP.





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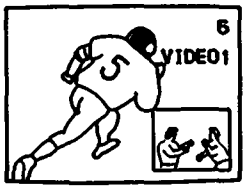
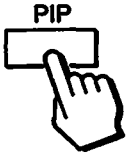
To change the position of the window picture — POSITION

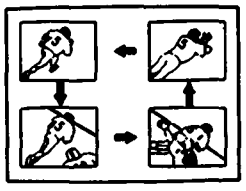
1 Set the PIP/VTR selector to PIP.

2 Press PIP to display a window picture.



3 Press POSITION.
Each time POSITION is pressed, the window picture will move counterclockwise on the screen as illustrated.

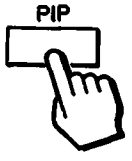


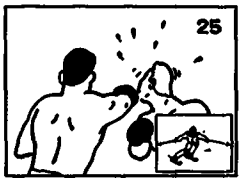


To freeze a window picture

1 Set the PIP/VTR selector to PIP.

2 Press PIP to display a window picture.

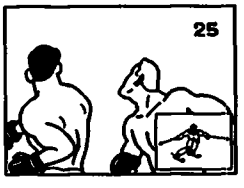




3 Press FREEZE.

The window picture will freeze.

Use this feature when you want to write down the recipe of a cooking program or a displayed toll free number, etc.



To restore the normal picture

Press FREEZE again.

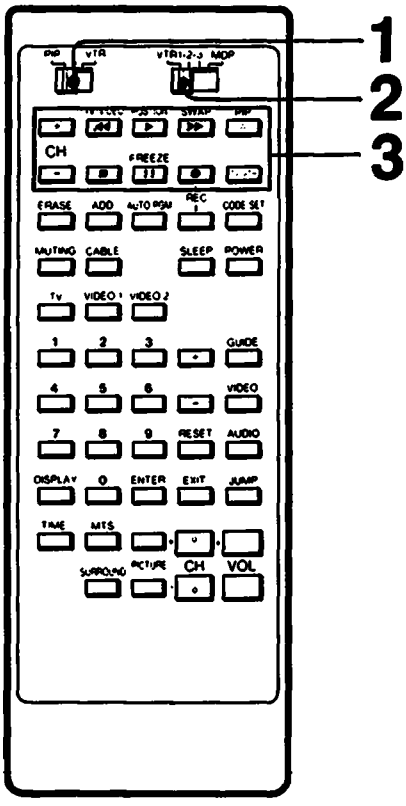
Note

The broadcast will be progressing normally while the still picture is on the screen.

Using the Universal Remote Commander

You can operate other video equipment that has an infrared remote detector with the supplied RM-Y104 or RM-Y103 remote commander.

Operating Sony Video Equipment



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Caution

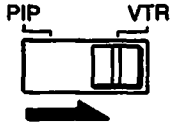
When you replace the batteries, do it within approximately 30 minutes. Otherwise, Sony settings and all of the settings you made under the Pre-Programmed function may be erased.

Notes

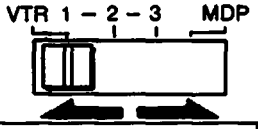
- If you use only Sony video equipment with your TV, you can operate that equipment following the steps on this page only. However, if you use other makers' video equipment as well as Sony's, please follow the steps on p. 23 instead (Pre-Programmed function).
- If the video equipment does not have a certain function, the corresponding button on this remote commander will not operate.

With the supplied remote commander, you can operate Sony video cassette recorders (Beta, 8 mm, VHS) and multi disc players by following the steps below.

1 Set the PIP/VTR selector to VTR. (KV-27EXR25 only)



2 Set the VTR 1/2/3/MDP selector according to the video equipment you want to operate.



If you want to operate a:	set to:
Beta, ED Beta VCR	VTR 1
8 mm VCR	VTR 2
VHS VCR	VTR 3
Video disc player	MDP

3 Use the video operating buttons to operate video equipment.

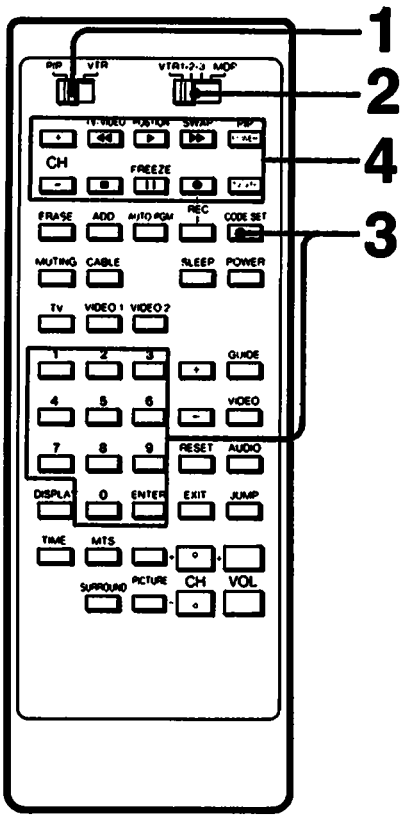
Operating a Video Cassette Recorder

To record	Press ●.
To play	Press ►.
To stop	Press ■.
To fast forward	Press ►►.
To rewind the tape	Press ◄◄.
To freeze a picture	Press ❚❚. *To resume normal playback, press again.*
To search the picture forward and backward	Keep pressing ►► or ◄◄ during playback. *To resume normal playback, release the button.*

Operating a Video Disc Player

To play	Press ►.
To stop	Press ■.
To freeze a picture	Press ❚❚. *To resume normal playback, press again.* *This function is effective only for CAV (standard-play disc). With CLV (extended-play disc), the projector will go into the standby mode if ❚❚ is pressed.
To search the picture forward and backward	Keep pressing ►► or ◄◄ during playback. *To resume normal playback, release the button.*

Operating Non-Sony or Sony Video Equipment (Pre-Programmed Function)



RM-Y104

Manufacturers and Code Numbers (VCR)

MANUFACTURER	CODE
SONY	01, 02, 03
EMERSON	22, 28, 30, 33
SHARP	13, 14
RCA	07, 08
HITACHI	07
FUNAI	29
MAGNAVOX	05, 06, 09
MITSUBISHI	18, 19, 26, 27
PANASONIC	05
GENERAL ELECTRIC	05
JVC	16
GOLDSTAR	25
TOSHIBA	20, 21
SYLVANIA	05, 06, 09
ZENITH	17
SANYO	11, 15
QUASAR	05
NEC	16, 23, 31
PHILIPS	05, 06, 09
TOTE VISION	25
SAMSUNG	24, 32
SYMPHONIC	29
FISHER	10, 11, 12
TEKNIKA	28, 29
CANON	05
PHILCO	05, 06
SCOTT	21
MULTITECH	29

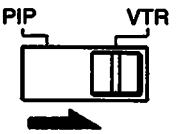
With the supplied remote commander, you can operate non-Sony or Sony video equipment as shown below.

Note

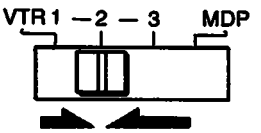
You may not be able to operate your non-Sony video equipment with the supplied Remote Commander. This is because your equipment may use a code that is not provided with this Remote Commander. In this case, please use the remote control unit provided with the non-Sony equipment.

Example: To operate an RCA video cassette recorder when you set the VTR 1/2/3/MDP selector to VTR 2.

1 Set the PIP/VTR selector to VTR. (KV-27EXR25 only)



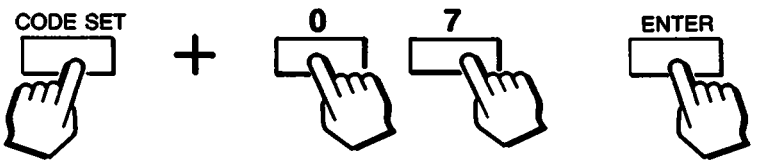
2 Set the VTR 1/2/3/MDP selector to VTR 2.



You can use the VTR/1/2/3 settings, but not MDP.
By employing these three settings, you can use your remote commander to operate up to 3 pieces of equipment.

To use a Sony VTR, set the selector to a position not being used for your Sony video equipment.

3 While pressing CODE SET, press the number buttons for your manufacturer's code number (see chart). For RCA, press 0, 7 and ENTER.



Now you can operate the video equipment with the supplied remote commander.

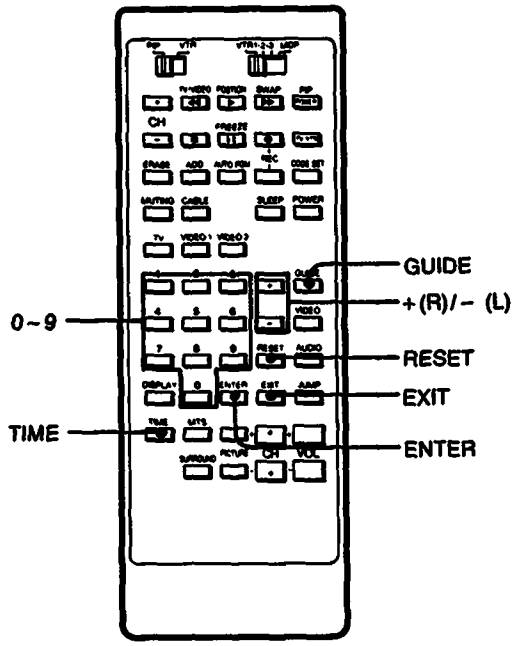
Notes

- If more than one code number is listed, try entering them one by one, until you come to the correct code for your equipment.
- If you enter a new code number, the code number previously entered at that setting will be erased.

4 Use the video operating buttons to operate video equipment (see the chart on p. 22).

Using the GUIDE Function (on-screen menu)

The GUIDE function calls up the on-screen menu, giving instructions on how to set the current time, TIMER and CHANNEL BLOCK.



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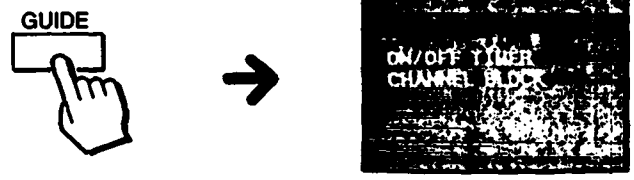
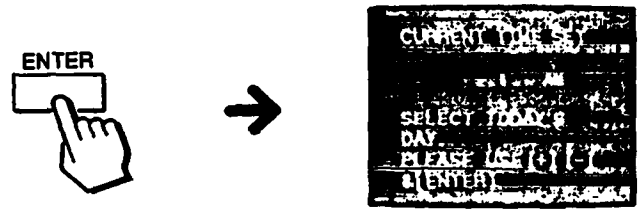
Setting the Clock

Example: To set the clock to 5:30 PM, Monday.

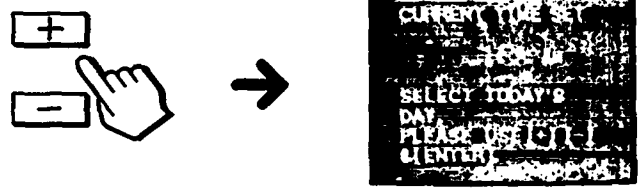
1 Press GUIDE.
Press repeatedly until the "CURRENT TIME SET" display turns red.



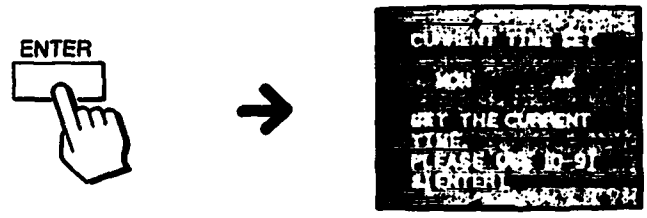
2 Press ENTER.



3 Press +/– until the desired day of the week appears.

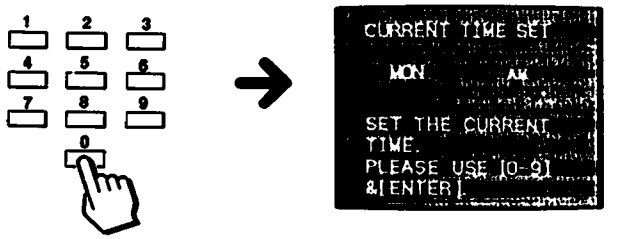


4 Press ENTER.
If the time is already set, the current set time will appear.
To clear these numbers, press any number.

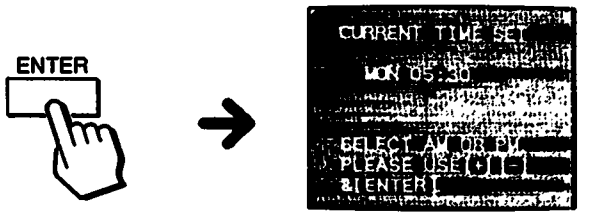


- *All settings will be erased from the TV's memory if the TV is unplugged, or if a power failure occurs.*
- *The ON/OFF TIMER and CHANNEL BLOCK will operate only if the clock is set correctly.*

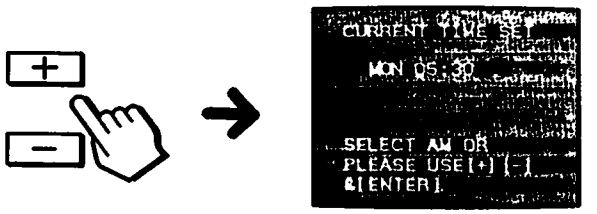
5 Press 0 – 9 to set the desired time.
(For 5:30, press 0, 5, 3, 0.)



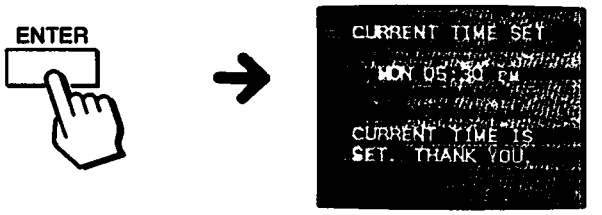
6 Press ENTER.



7 Press +/– to set AM or PM.



8 Press ENTER.
The moment ENTER is pressed, the clock will start. A display will appear indicating that the clock has been set, and will disappear after about 5 seconds.



To restore the normal picture
Press EXIT.

To clear the current time setting
Display the "CURRENT TIME SET" page and press RESET, then EXIT.

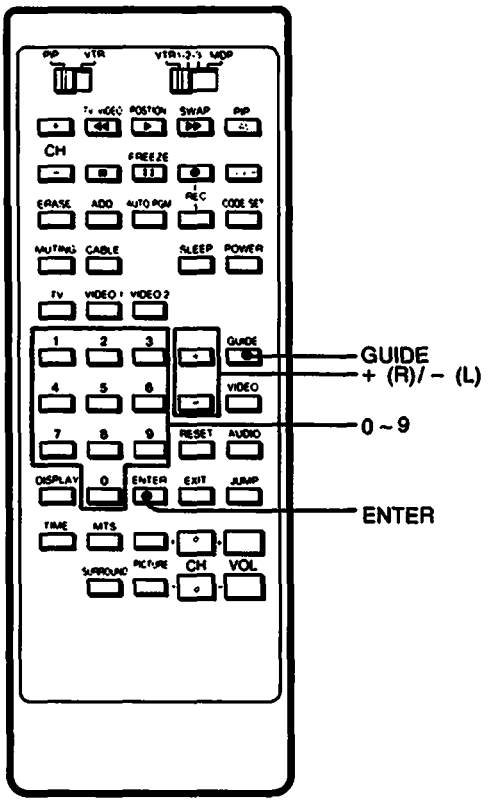
To reset the setting
Display the "CURRENT TIME SET" page and press RESET, then repeat steps 3 to 8.

To display the current time
Press TIME.

Notes
- The internal clock of this TV operates on a 12-hour cycle. If a 24-hour cycle number is entered, it will be cleared when ENTER is pressed.

12:00 AM stands for midnight. 12:00 PM stands for noon.

- The internal clock returns to the factory-set condition if the TV is unplugged, or if a power failure occurs. Reset the current time.



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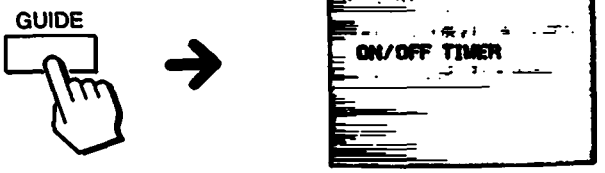
Setting the ON/OFF Timer

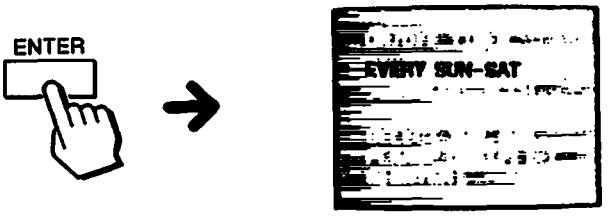
Set the ON/OFF timer to make the program of your choice appear on the screen at the chosen time.

Example: Set the timer to turn on the TV to channel 8 at 1:00 PM, for 3 hours every Monday through Friday.

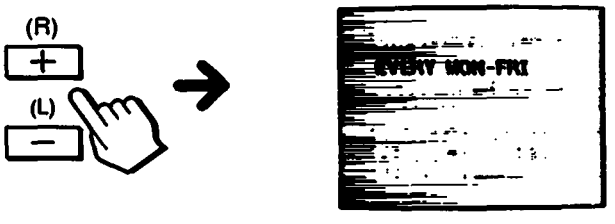
1 Press GUIDE.
Press repeatedly until the "ON/OFF TIMER" display turns red.



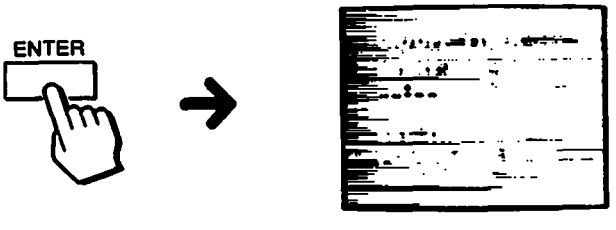
2 Press ENTER.
Instructions for selecting the day appear.
(If the clock has not been set, "PLEASE SET CURRENT TIME FIRST" appears on the screen. Go back to page 30 — Setting the Clock.)



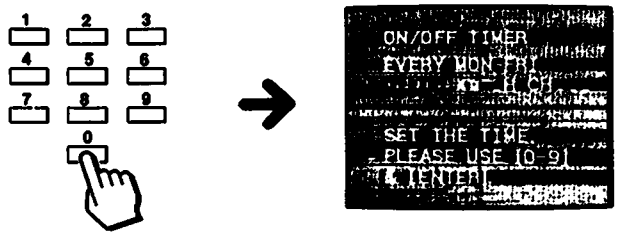
3 Press +/– until the desired day of the week appears.



4 Press ENTER.
Instructions for setting the time appear.

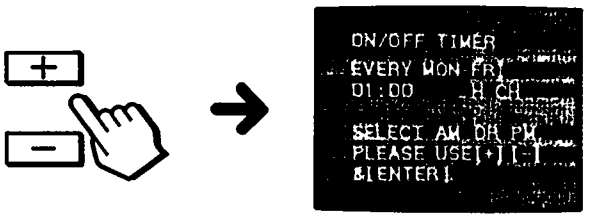


5 Press 0 – 9 to set the desired time. (For 1:00, press 0, 1, 0, 0.)



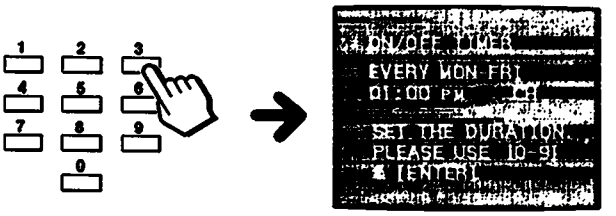
6 Press ENTER.

7 Press +/– to set AM or PM.

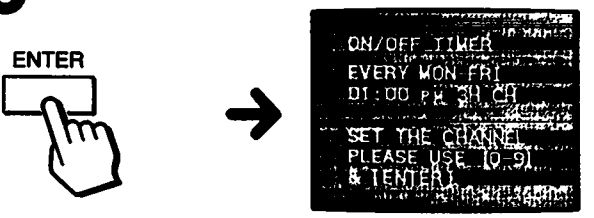


8 Press ENTER.

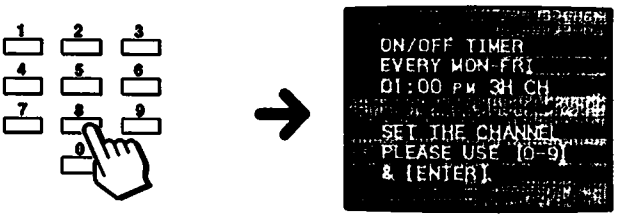
9 Press a channel number button to set the duration. (Up to 9 hours can be set.)



10 Press ENTER.

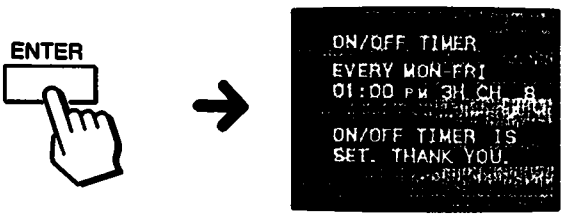


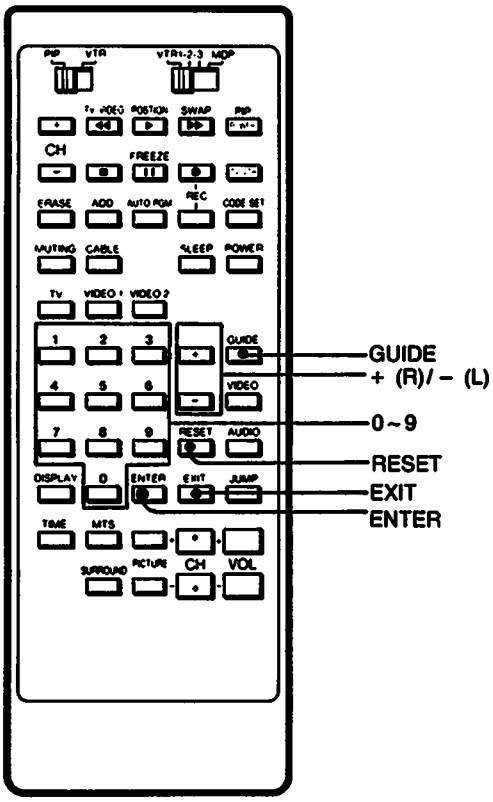
11 Press 0 – 9 to set the desired channel number.



12 Press ENTER.

The ON/OFF timer is set.
The TIMER indicator on the TV lights up.





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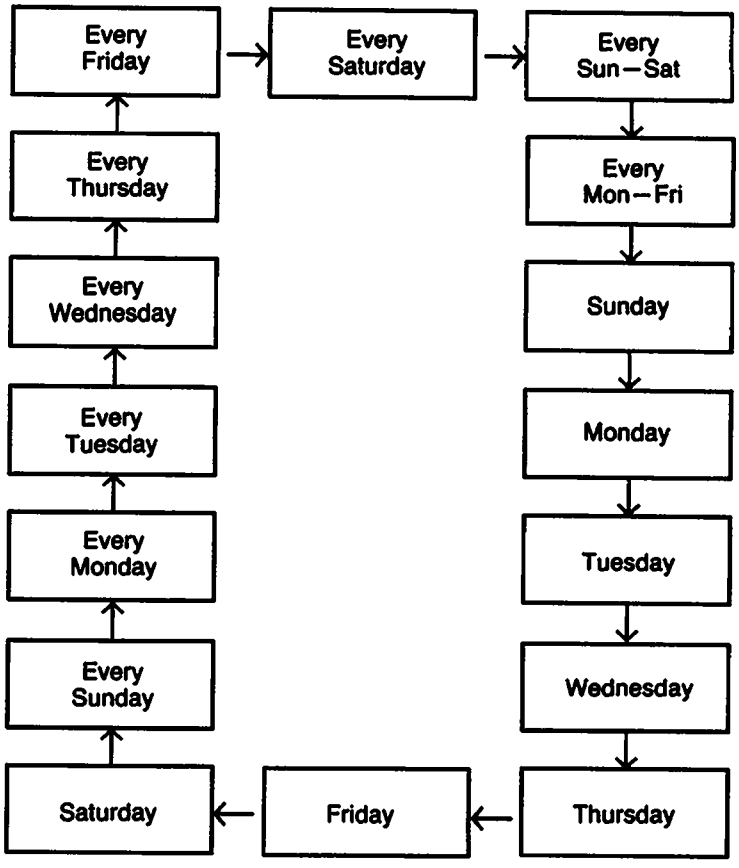
To restore the normal picture
Press EXIT.

To clear the setting
Display the "ON/OFF TIMER" page and press RESET, then EXIT.

To reset the setting
Display the "ON/OFF TIMER" page and press RESET, then repeat steps 3 to 12.
The "TIMER WILL BE OFF" indication will appear one minute before the timer goes off.

Notes
- Power back-up is not available. Both the clock and timer settings will be erased if a power failure occurs. Reset the current time, then set the timer.
- The selectable days will appear in the following order when you press [+]:



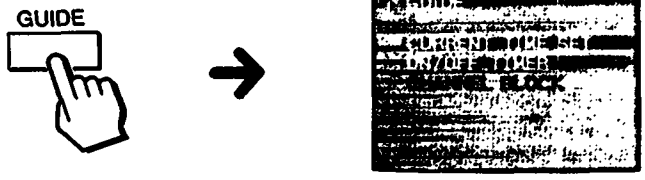
Press [–] to move in the reverse direction.

Setting CHANNEL BLOCK

CHANNEL BLOCK prevents a channel from appearing on the screen during the preset time. We suggest you use this function to prevent children from watching undesirable programs.

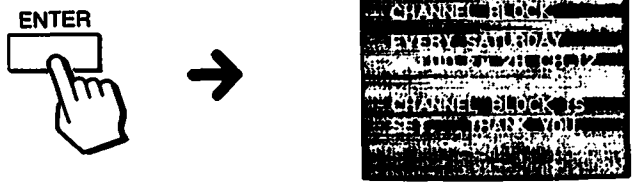
Example: Set CHANNEL BLOCK at 4:00 PM (for 1 hour), every Saturday, on channel 12.

1 Press GUIDE.
Press repeatedly until the "CHANNEL BLOCK" display turns red.



Steps 2 – 11: Same as Setting the ON/OFF Timer.
(See page 24.)

12 Press ENTER.
CHANNEL BLOCK is set.
At the preset time, the picture of the selected channel will be blocked from view and the sound will be muted. A red "BLOCKED" display will appear on the screen while the channel is blocked.

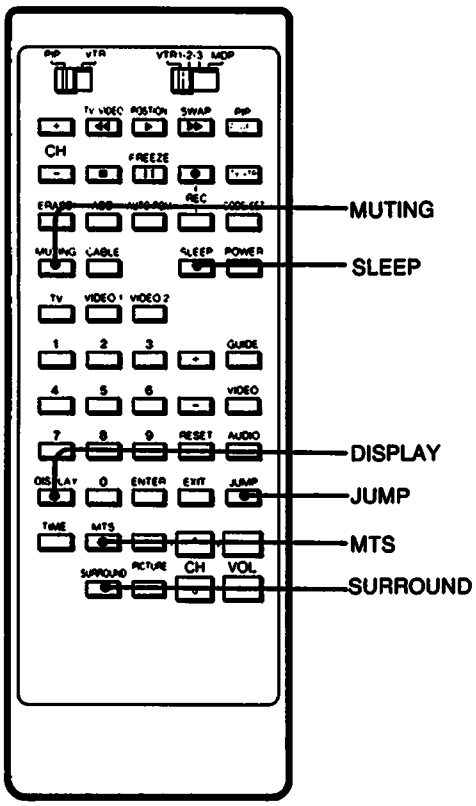


To restore the normal picture
Press EXIT.

To clear the setting
Display the "CHANNEL BLOCK" page and press RESET, then EXIT.

To reset the setting
Display the "CHANNEL BLOCK" page and repeat the steps from the beginning.

Enjoying other Useful Features



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Muting the sound — MUTING

1. Press MUTING.
2. The display "MUTING" will appear on the screen.
3. To restore the sound, press MUTING again, or press VOL +.

Keeping the channel displayed — DISPLAY

To DISPLAY the channel: Press DISPLAY

All the current displays will appear for a few seconds, then disappear. The channel display will remain on the screen.

To CANCEL the display: Press DISPLAY again

The channel display will disappear.

Receiving a Multichannel TV Sound program — MTS

Each time you press MTS, the MAIN, SAP (Second Audio Program) and MONO modes are selected in sequence. The display (in green) for each mode will appear on the screen for a few seconds.
(NOTE: During SAP modes, the sound of non-SAP programs will be muted.)

TO LISTEN TO STEREO SOUND:

1. Press MTS to select the MAIN mode.
2. The MAIN display will appear on screen.
3. The STEREO indicator lamp on the TV will light up whenever a stereo broadcast is received.

NOTE: A weak incoming signal may cause excessive noise with some stereo broadcasts.
Switch to MONO mode to eliminate this noise.

Listening to surround sound — SURROUND

TO SET: (Gives a surround sound effect to stereo broadcasts and external stereo sources)

1. Press SURROUND.
2. The "▮▮▮" display will appear on the screen for a few seconds.

TO CANCEL: Press SURROUND again. The " ▮▮▮ " display will appear for a few seconds.

Using the sleep timer — SLEEP

TO SET: (Turns TV off automatically about 1 hour after setting)

1. Press SLEEP.
2. A green "SLEEP ON" display appears for a few seconds.
3. A red "SLEEP" display will appear 1 minute before the TV shuts off.

TO CANCEL:
Press SLEEP again.
A green "SLEEP OFF" display appears for a few seconds.
OR
Turn the TV off. *The sleep timer setting will be cancelled.*

Switching quickly between 2 channels — JUMP

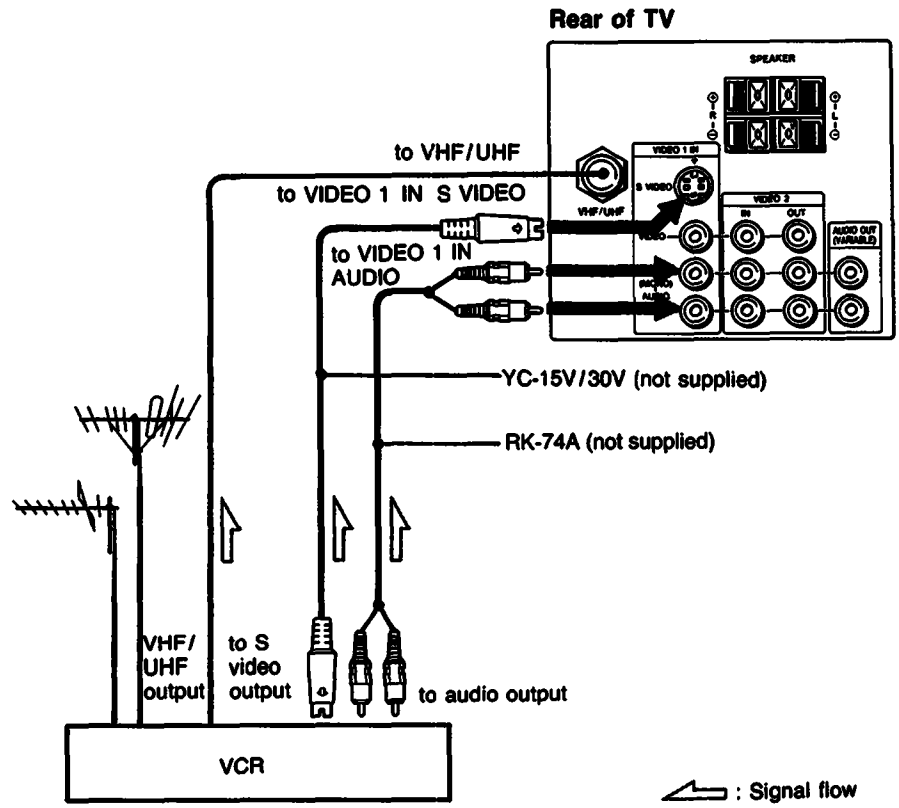
Each time you press the JUMP button, the channel which appeared on the screen immediately before is recalled. Use this feature to keep track of two programs alternately.

Connecting Video Equipment

After connecting, you will be able to ...

— Play back video tapes
— Record TV programs
— Record one TV program while viewing another
— Watch 2 TV programs at once using Picture-in-Picture, P. 18

Connecting a VCR with an S video output jack



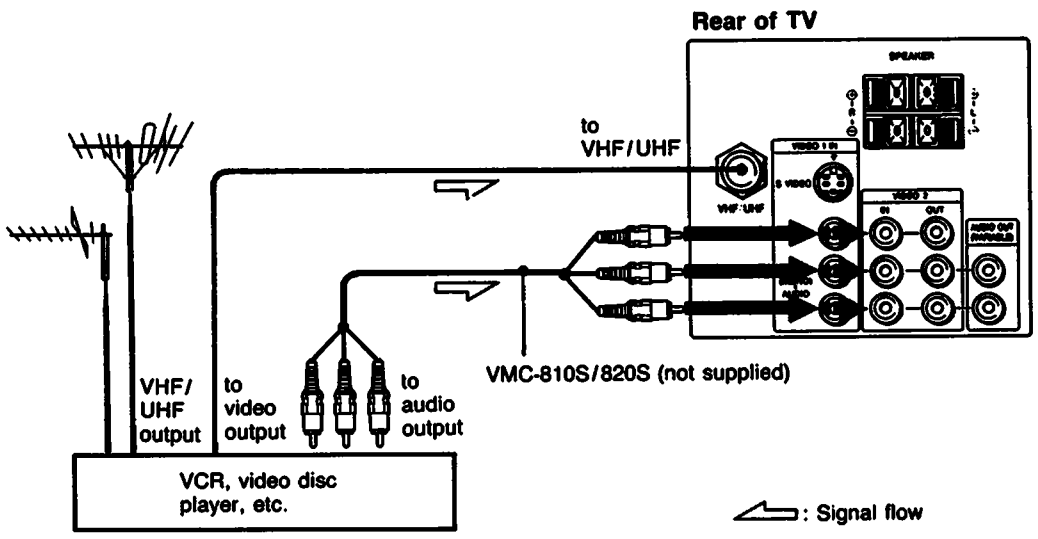
Notes

- If you connect a monaural VCR, connect the audio output of the VCR to the L (MONO) jack of VIDEO 1/2 IN on the TV. The monaural sound will be heard from both speakers.
- For operating instructions, refer to the instruction manual furnished with the VCR.
- If the picture or sound is affected, more the VCR away from the TV.

About S video input

Video input and output signals can be separated into Y (luminance or brightness) and C (chroma or color) signals. Usually these two signals are combined in a VCR and sent as one signal to a TV. Separation of the Y and C signals prevents them from interfering with one another, thereby improving picture (especially color) quality.
This monitor is equipped with an S video input jack through which these separated signals can be input directly.

Connecting a VCR/video disc player, etc. not equipped with an S video output jack



Preparing for use

1 Turn on the TV.

2 Press the TV/VIDEO button on the TV or an input select button on the remote commander so that "VIDEO 1" or "VIDEO 2" appears on the screen.

VIDEO 1: for equipment connected to VIDEO 1 IN
VIDEO 2: for equipment connected to VIDEO 2 IN

To view one TV program while recording another
Press the TV/VTR mode select button on the VCR or remote commander so that the VCR is in TV mode. Press the TV button on the remote commander, and select the channel you want to view.

When you cannot obtain a clear picture and/or sound
Make sure that the TV/VTR mode select button on the VCR is set to TV. Reselect the desired channel with the buttons on the TV or the remote commander.

Operating your equipment

When using a Sony infrared remote control VCR, video disc player or multi disc player, the equipment can be operated with the remote commander supplied with the TV.

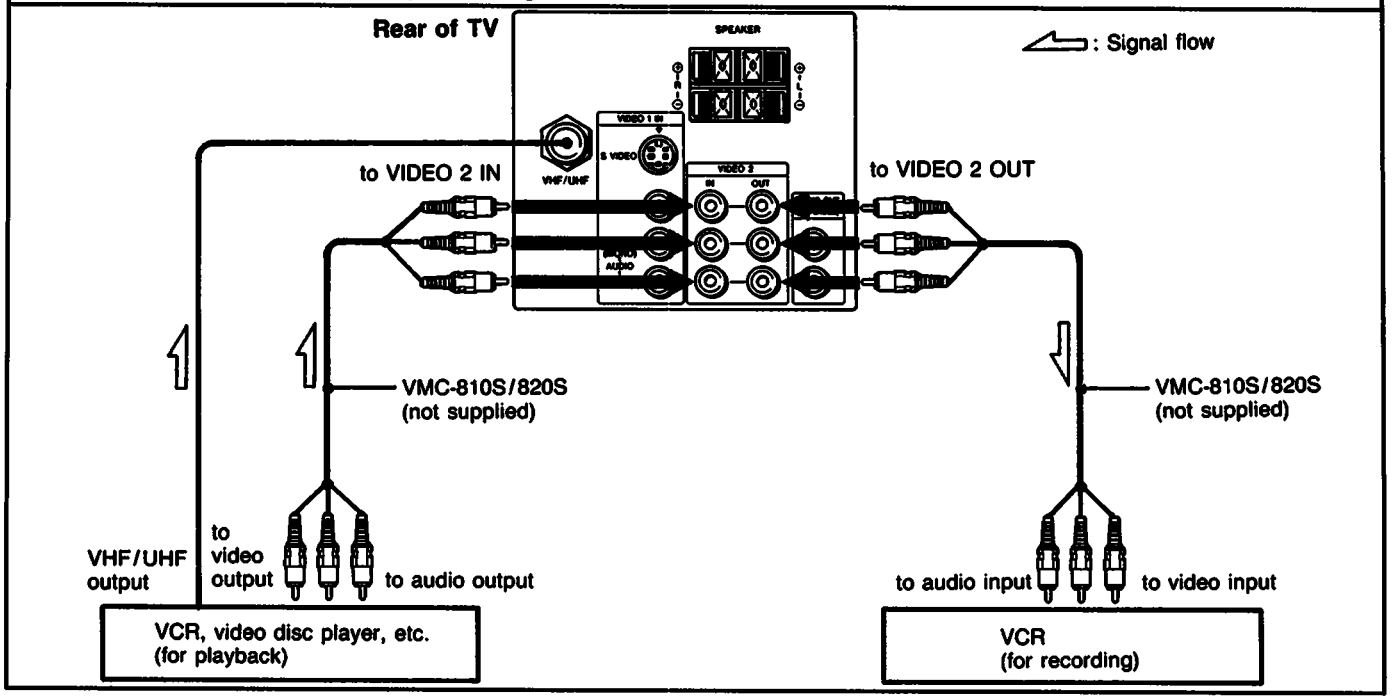
1 Set the VTR 1/2/3/MDP selector to the appropriate position according to the equipment you want to operate.

VTR 1: Sony Betamax VCR
VTR 2: Sony 8 mm VCR
VTR 3: Sony VHS VCR
MDP: Sony video disc player or multi disc player

2 Press the VCR/multi disc player operation button on the remote commander.

To return to TV mode
— Press the TV/VIDEO button on the TV so that a channel number appears on the screen.
— Press the TV button on the remote commander.

Connecting Two VCRs for Tape Editing



Preparing for tape editing

1 Press TV/VIDEO on the TV or VIDEO 2 on the remote commander so that "VIDEO 2" appears on the screen.

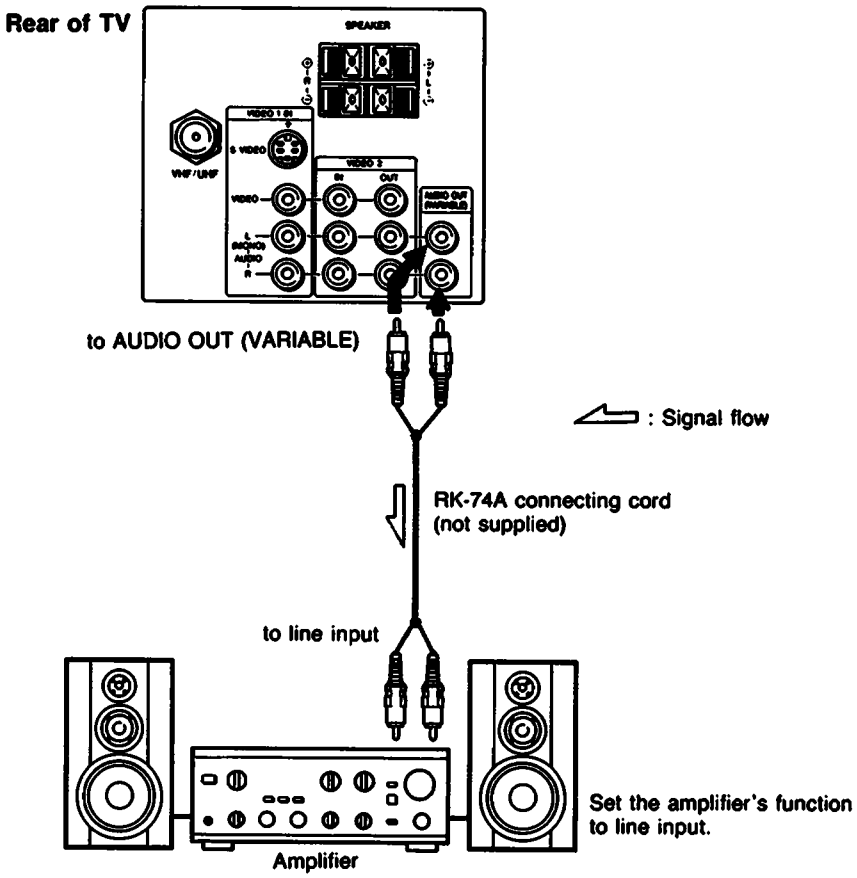
2 Set the playback VCR to the playback mode and the recording VCR to the recording mode.

Note on tape editing

The video signal input from the equipment connected to the VIDEO 2 IN jacks is directly output from VIDEO 2 OUT even when the TV is OFF. The video signal input from VIDEO 1 IN is not output from VIDEO 2 OUT. To edit the tape, use the VIDEO 2 IN and OUT jacks.

Connecting an Audio System

Listening to TV or connected VCR sound through an audio system

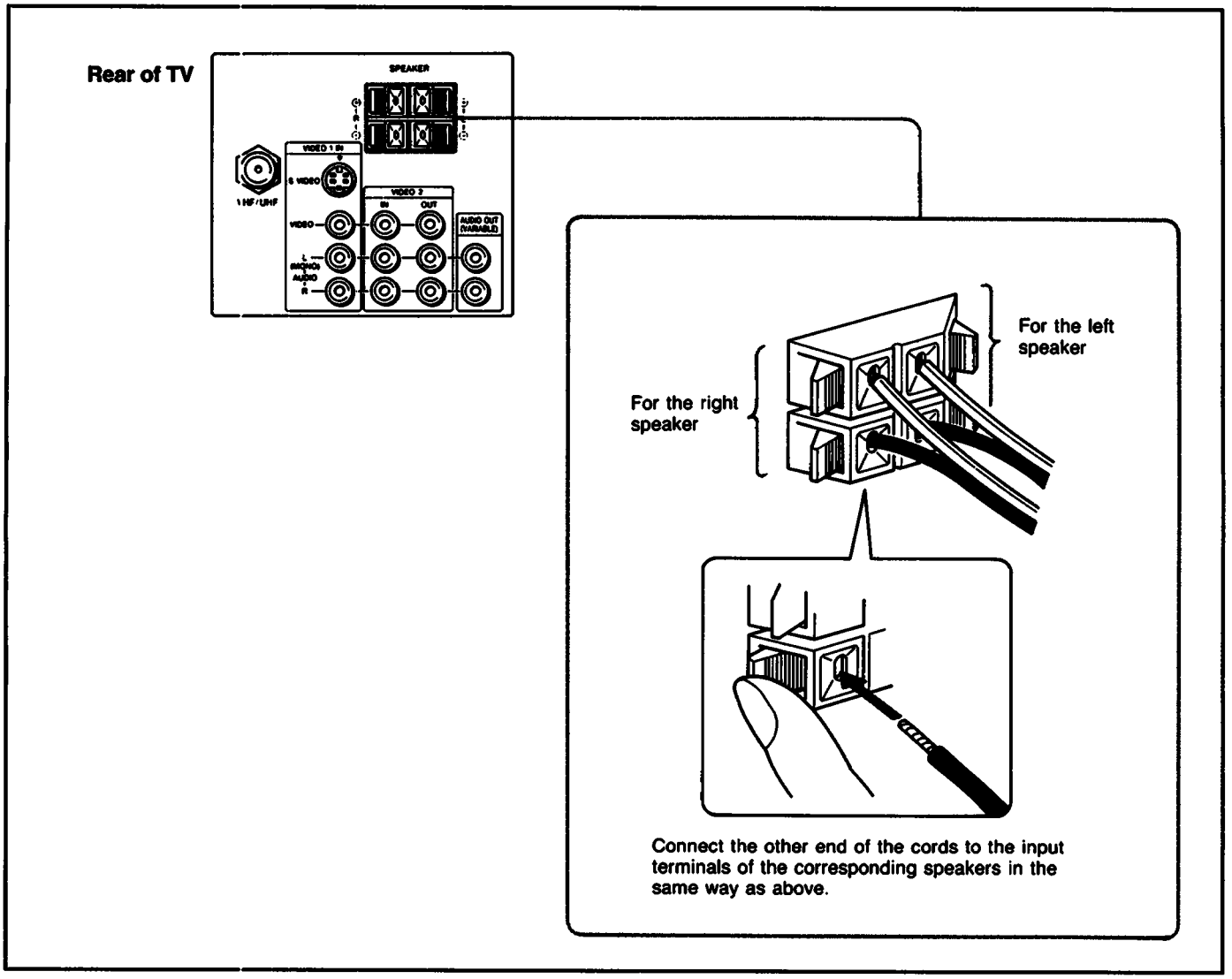


Adjusting the sound level

Leave the amplifier volume, bass and treble controls at their mid position and adjust the level with the VOLUME +/– buttons on the TV or the VOL +/– buttons on the remote commander.

When an audio system is connected to AUDIO OUT
Press AUDIO on the remote commander repeatedly until the "SPEAKER ON" display appears on the screen, and press [–] to display "SPEAKER OFF".
The sound from the TV's speakers will be cut off when the "SPEAKER OFF" display appears.

Connecting Extra (not supplied) External Speakers



Note

Remove the speaker cords of the TV from the SPEAKER terminals before connecting external speakers.

Phasing

Correct ⊕ ⊖ connection of both speaker systems ensures proper in-phase operation. If the speaker system is out-of-phase, the bass tones seem to be missing and the position of the instruments is obscured.

Caution

- If you connect external speakers, they must be rated at over 8-ohm impedance (with normal power holding capacity of more than 5 W).
- Unplug the TV while making these connections. If the exposed speaker cord wires touch while the TV is connected, the TV may short-circuit and be damaged.

Specifications & Troubleshooting

Specifications

Television system American TV standards
Channel coverage VHF: 2 – 13
UHF: 14 – 69
Cable TV: 1 – 125
Picture tube Microblack™ Trinitron® tube
20-inch picture measured diagonally
21-inch picture tube measured diagonally (KV-20EXR20)
27-inch picture measured diagonally
28-inch picture tube measured diagonally (KV-27EXR20/27EXR25)
Antenna 75-ohm external antenna terminal for VHF/UHF
Input VIDEO 1 and 2 IN
S VIDEO IN (4-pin mini DIN)
Y: 1 Vp-p, 75-ohms unbalanced, sync negative
C: 0.286 Vp-p (Burst signal), 75-ohms
Video (phono jacks): 1 Vp-p, 75-ohms unbalanced, sync negative
Audio (phono jacks): 500 mVrms (100% modulation)
Impedance: 47 kilohms
Output VIDEO 2 OUT
Video (phono jack): 75-ohms unbalanced, sync negative
Audio (phono jacks):
Impedance: 10 kilohms
AUDIO OUT (VARIABLE)
(phono jacks)
More than 408 mVrms at the maximum volume setting (variable)
Impedance: 5 kilohms
Speaker output 5 W × 2
Power requirements 120 V AC, 60 Hz
Power consumption

	Max.	Standby
KV-20EXR20	130W	1.5 W
KV-27EXR20	160 W	
KV-27EXR25	165 W	

Supplied accessories
(KV-20EXR20/27EXR20)
Remote commander RM-Y103 with 2 size AA (R6) EVEREADY batteries (1)
(KV-27EXR25)
Remote commander RM-Y104 with 2 size AA (R6) EVEREADY batteries (1)
Recommended accessories
300-75 ohm adaptor
U/V mixer EAC-66
Connecting cable
VMC-810/820S, YC-15 V/15 V/30 V
Video rack SU-275

Design and specifications are suject to change without notice.

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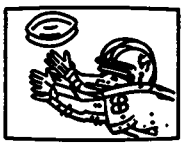
Troubleshooting

Disturbances in picture and sound can often be eliminated by checking the symptoms and following the suggestions listed below.

SYMPTOM	CHECK AND ADJUST
Poor or no picture (screen not lit), good sound	• Adjust PICTURE. • Adjust BRIGHT. • Check antenna/cable connections.
Good picture, no sound	• Press VOLUME + on the TV or VOL + on the remote commander. • Press MUTING on the remote commander. • Check that the MTS button is set correctly. • Check that the TV/VIDEO button is set correctly. • Check that "SPEAKER ON" is set. • Check that the speaker cords are connected to the SPEAKER terminals.
No picture (screen not lit), no sound	• Is POWER switched on? • Plug the unit into a wall outlet. • Check that the TV/VIDEO button is set correctly.
No color	• Is it a color program? • Adjust COLOR.
Snow and noise only	• Is it an active or the correct channel? • Check the CABLE setting. • Check antenna/cable connections.
Dotted lines or stripes	This is often caused by local interference. (e.g. cars, neon signs, hairdryers etc.) Adjust the antenna for minimum interference.
 **Double images or ghosts**	Reflections from nearby mountains or buildings often cause this problem. A highly directional outdoor antenna or a CATV cable may improve the picture.
Try another channel. It could be station trouble.	

If the problem persists, contact your nearest service facility.